

Woodturning by Steve Blenk

Bowls

Beautiful Bowl Bases

No holes,
no plugs,
no visible
means of
support.

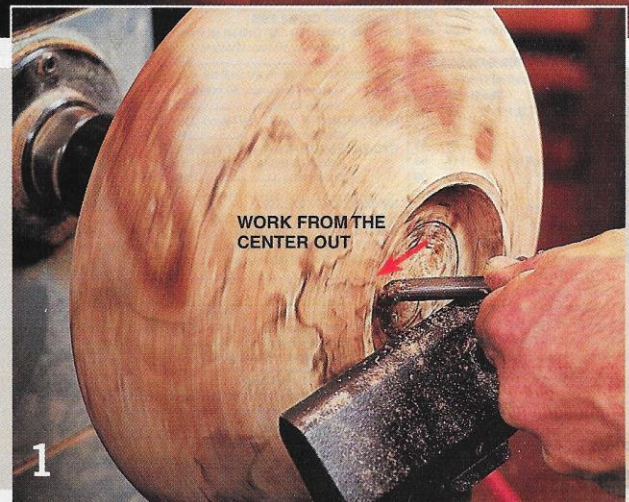
Have you ever wondered how a bowl can have every inch, inside, outside, and bottom exquisitely turned, with no sign of having ever been mounted on a lathe? Bowls have to be mounted at the headstock end of the lathe to turn the inside, so how can the bottom not show screw holes or plugs?

Solving this mystery will enhance every bowl you turn. Here's how you can do it. To turn a pristine bowl bottom, you have to be able to turn from both ends of the blank. Turners call this "reverse mounting." One way to do this is to buy an expensive chuck system with adjustable jaws. These systems are great, but you can get results just as good with methods woodturners used before fancy chucks were available.

I'm going to show you three different techniques for reverse mounting. The first makes use of a screw chuck and the second requires two faceplates. These two techniques have this in common: You turn the outside and bottom of the bowl first, glue a waste block to the edge of the bottom rim, reverse mount it onto the waste block, and then turn the inside. I use cyanoacrylate (CA) glue because it bonds quickly. Yellow or polyurethane glues will work as well, but you'll have to maintain pressure on the joint until the glue cures. If you are working with green wood, use CA glue. I recommend using one of these two

Turn the Outside and Base First.

HOLLOW the base with a $\frac{3}{8}$ -in. bowl gouge, working from the center out toward the rim. I establish the inside edge of the rim wall first, and ease the transition between the rim wall and the bottom with a cove or taper. I make the rim $\frac{3}{16}$ -in. to $\frac{1}{4}$ -in. wide, depending on the bowl's size. Finally, I make sure the edge surface of the rim is flat and perpendicular to the lathe's axis so the bowl will sit level.

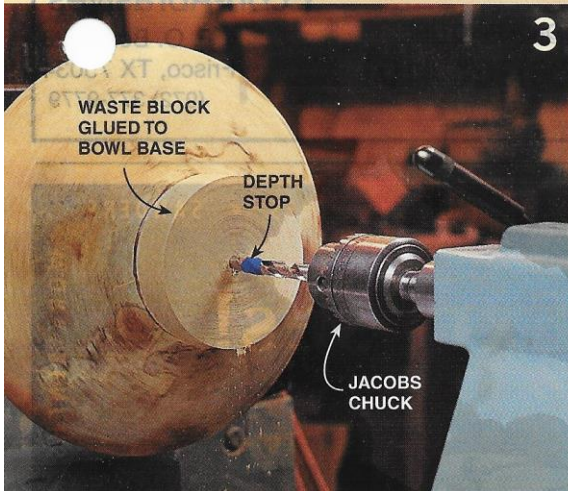
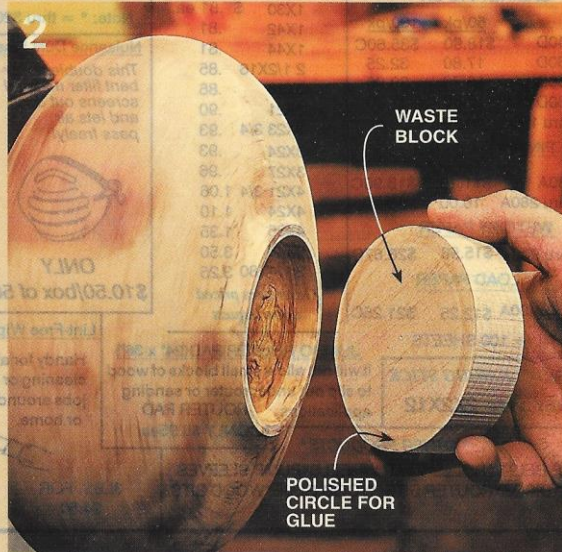


WORK FROM THE
CENTER OUT

Reverse Mounting Using a Screw Chuck. Mounting the waste block onto the bowl is easy—just mark, glue and press, but you have to be able to chuck a drill bit into the tailstock of your lathe.

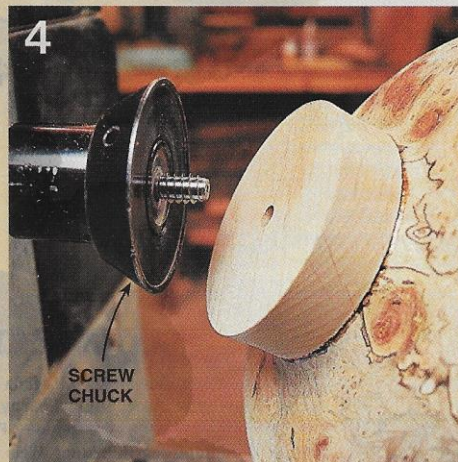
MARK the waste block for gluing by pressing it against the bowl base rim while the lathe is running. The friction leaves a polished circle on the block's face.

Lay a bead of cyanoacrylate (CA) glue on the mark and attach the waste block to the base rim. Then turn the waste block round and flat across its face.



BORE a perfectly centered hole in the waste block. Mount a Jacobs chuck (the one from your drill press might fit) in the tailstock and insert the proper-sized drill bit. With the lathe running at slow speed, advance the bit slowly into the block. Be careful not to drill into the bowl's bottom. Then remove the bowl from the screw chuck.

REMount the bowl using the hole in the waste block. Since this hole was bored on the axis of the bowl, the piece will remount on center. Run the lathe at a slow speed and do any truing up that is necessary. Then turn the interior of the bowl, sand and finish it. Part the bowl off at the joint with the waste block. Stop just short of cutting all the way through, shut off the lathe and give the bowl a little tap to break it away. Remove any remaining waste with a light touch on the belt sander.



Woodturning

techniques whenever possible. The third technique, using a mandrel shaped to the bowl's interior, is used when you have to turn the inside of the bowl first, and the outside last.

It's Best to Shape the Bottom First

Attach what will be the open end of the bowl to the headstock any way you want. Screw holes will make no difference, because they get removed when you turn the bowl's interior. Shape the bowl's outer profile, leaving a turned section at the bottom for the base.

I make most bases concave, using a small bowl gouge to remove the waste from the interior (Photo 1). First I cut into the bottom face to create a rim. Then I hollow the center. For continuity, the recessed base should follow the bowl's main curve. I either blend the outside of the base rim into the bowl's outside shape with an ogee, or differentiate it with a ridge or groove.

Sand and finish the hollowed inside of the bowl's base now. This is the last shot you get at this surface until the bowl is off the lathe, and sanding under power will save tedious hand work later. If you plan to use a lathe-applied finish, do the interior of the base now as well, but leave the edge surface of the rim unfinished, as it will be a gluing surface.

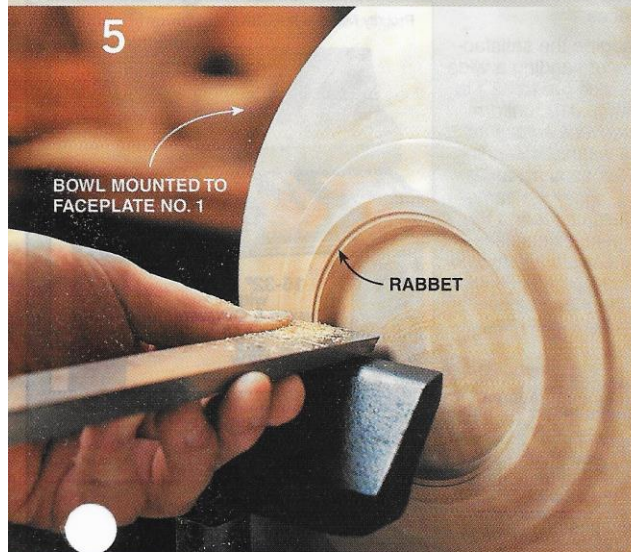
With the outside and bottom of the bowl completed, it's time to reverse mount it so you can work the inside.

Reverse Mount Using a Screw Chuck

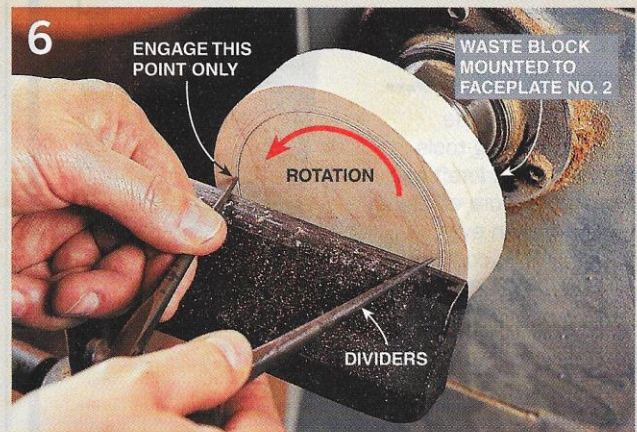
A screw chuck, used with a waste block makes it easy to flip the bowl blank over. I use a disk of wood a bit bigger than the bowl's base and thick enough (about 1 in.) to house the screw. Mark the face of the waste block for gluing (Photo 2) and glue it on. After gluing it on, drill a mounting hole. By drilling from the tailstock, the hole in the waste block will be on-axis (Photo 3). Remove the bowl from the screw chuck and remount it from the waste block so you can work the inside (Photo 4).

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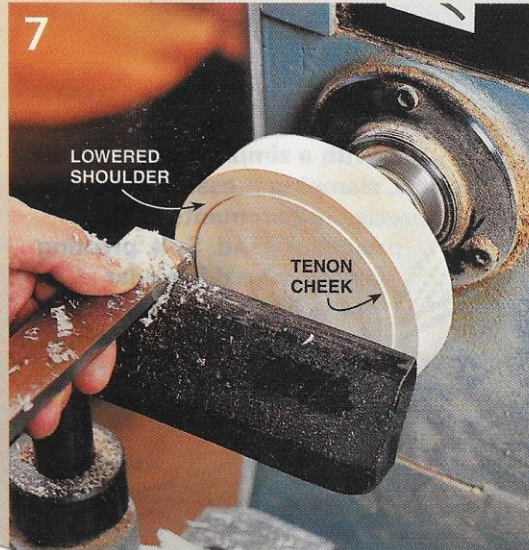
Reverse Mounting Using Two Faceplates. Two faceplates are cheaper than one screw chuck, and you don't have to drill from the tailstock. You do have to cut a rabbet into the bowl's base rim and a tenon that will fit it snugly on the waste block.



CUT a rabbet, about $\frac{1}{16}$ in. by $\frac{1}{16}$ in. into the inside edge of the bowl's base rim with a flat scraping tool. Make sure to cut in perpendicular to the edge. You've created a short, round mortise. Remove the bowl from the lathe leaving it attached to faceplate No. 1.



SCRIBE the diameter of the base's round mortise onto a waste block mounted on faceplate No. 2. First true the waste block's face. Then, using a pair of dividers set to the inside edges of the base rim mortise, center the tenon diameter on the waste block. Lay them on the tool rest, and with the lathe running at slow speed, lightly mark the waste block, engaging only the divider point nearest you—it's the one on the downward side of the rotation. Check to see if the mark aligns with the other point and reposition the dividers until it does. When you've centered the dividers, scribe the diameter, using only the near point.

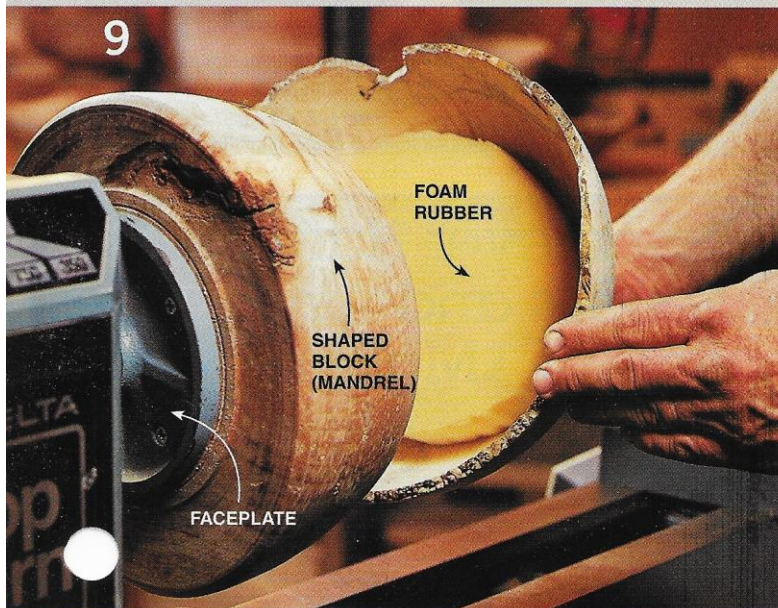


LOWER the shoulder outside the scribed line on the waste block to create a round tenon. The fit between the cheeks of the tenon and mortise must be exact for the bowl to remount on center, so work carefully when you get near the scribe line and check the fit often. The tenon must be short enough so that the base rim seats on the lowered shoulder of the waste block.

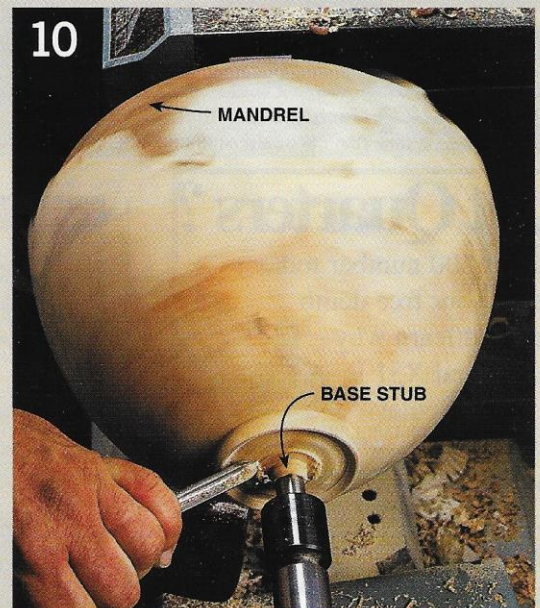


APPLY a bead of CA glue to the tenon shoulder on the waste block, being careful not to get it on the tenon cheek. Then press the waste block onto the bowl base, making sure it seats properly, and hold it until the glue sets. Remount the assembly on the lathe from faceplate No. 2, and check the remounting by running the lathe at slow speed before removing faceplate No. 1. Finish turning the inside of the bowl, then part it from the waste block at the base rim, removing all traces of the mortise and tenon.

Reverse Mounting With a Shaped Mandrel. You have to turn a mandrel—a mounting block that will fit the inside shape of the bowl and be able to work the bowl's outside by making light cuts with sharp tools at slow speeds. Use this method if you want to rework an already finished bowl.



TURN a faceplate-mounted block so it will closely match the finished inside of a natural-edged bowl. A piece of 1- to 2-in. foam rubber is put between the two to provide friction and prevent marring the bowl's interior. Rotate the piece by hand first to check for clearance on the natural edge. Then run the lathe at slow speed. You'll probably have to adjust the tailstock placement to get the piece running true to the axis.



REMOVE the waste with very light cuts and the lathe running at slow speed. Even though the tailstock is being used, the bowl is only held in position by friction. Leave an adequate stub at the base to support the pressure of the tailstock. You'll have to remove this stub by hand after the bowl has been removed from the lathe.

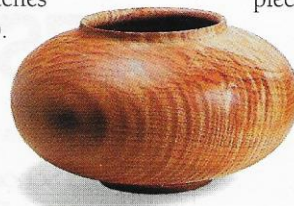
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Reverse Mount Using Two Faceplates

If you don't have a screw chuck, you can remount a bowl on center using two faceplates and a waste block. To do this you must allow extra base rim height when you first turn the outside and bottom of the bowl. This extra height will be removed when the finished bowl is cut from its mounting block. With the bowl mounted on faceplate No. 1, cut a small rabbet into the inside bottom edge of this rim (Photo 5).

Mount a waste block on faceplate No. 2, true its face, scribe it (Photo 6), and create a round tenon that matches the round mortise you made in the base (Photo 7).

Glue the waste block to the bowl (Photo 8), then remount from faceplate No. 2, leaving faceplate No. 1 attached. This allows you a chance to reshape the base just in case things don't line up on the first try. When you're satisfied with the mounting, remove faceplate No. 1 and finish turning the inside.



STEVE BLENK, 1999
TURNED BOWL OF
BIGLEAF MAPLE

Reverse Mount with a Shaped Mandrel

Any time you want to remount a bowl that's already had its inside turned, you can hold it between the tailstock and a mandrel custom-turned to fit the bowl's interior.

Bowls with uneven, natural edges can pose a real problem because the blanks from which these turnings come are usually irregular, and sometimes it's only practical to base-mount them, turn the inside first, and leave the outside and bottom for last.

Mount a piece of wood of suitable diameter and thickness onto a faceplate or screw chuck. Turn the front surface of this piece to match the contour of the bowl's interior (Photo 9). If you're going to remount an already finished bowl, you'll first have to glue a stub to the center of its bottom for the tailstock to bear on. Position the bowl around the mandrel, with foam rubber or a scrap of short-napped carpet in between, and hold it tight with the tailstock. Once the piece is positioned, finish the outside down to the glued-on stub (Photo 10). **AW**